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Synergistic Inhibition Effects of Octadecylamine and Tetradecyl Trimethyl Ammonium Bromide on Carbon Steel Corrosion in the H₂S and CO₂ Brine Solution

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Highlights

- Octadecylamine and tetradecyl trimethyl ammonium bromide can effectively reduce the CO₂ and H₂S induced corrosion of steel.
- A good synergistic corrosion inhibition effect of octadecylamine and tetradecyl trimethyl ammonium bromide is observed.
- Molecular dynamic simulation technique was used to study the synergism of inhibitors.
- The synergism of inhibitors was found correlative to the fraction free volume value of inhibitor film.
- Co-adsorption process of inhibitors was studied to explain the synergistic mechanism.

ABSTRACT

The corrosion inhibition performances of octadecylamine (OCT) and tetradecyl trimethyl ammonium bromide (TTAB) for carbon steels in H₂S and CO₂ brine solution were investigated by weight loss, potentiodynamic polarization, molecular

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